134. *Kolába.*—Mr. Stewart reports unfavourably of the reproduction by seed of teak and other species, but natural reproduction is, he considers, fairly good in portions of Alibág, Roha and Nágotna.

135. The jungles of Kolába consist almost entirely of coppice including a relatively large quantity of teak, and they coppice well.

136. *Ratnágiri.*—Reproduction by coppice is reported to have been satisfactory; while, that by seed was not. The forests are situated for the greater part on the steepest slopes of the Ghâts on which reproduction is naturally slow. The Divisional Officer reports that, although no seedlings could be discovered in the low-lying pure teak-forest of Dápoli, in that of Málván some seedlings, and in the jungles of Kalamboshi a fine growth of *Terminalia*, was observed.

(2). *Artificial Reproduction.*

137. *Northern Division of Kánara.*—An experiment was made in the planting-out of teak in bamboo-tubes, as it was found that the seedlings taken up and planted out without special protection failed in most cases. 13,132 seedlings were put out in that way. Of these, 7,723 seedlings are reported to be thriving. This experiment was not, however, properly carried out; the plants were first raised in nurseries or taken from the jungles and afterwards placed in bamboo-tubes, instead of being sown in the tubes in order to prevent all handling of the roots.

138. 600 seedlings of *Terminalia tomentosa*, put down in open places in the Kárwár-range, have succeeded.

139. The expenditure incurred in the Division amounted to Rs. 369.

140. *Central Division of Kánara.*—8,683 teak-, 1,991 blackwood- and 1,597 junglewood-plants were put down from nurseries. Of these, 6,237 teak-, 1,242 junglewood- and 1,741 blackwood-plants existed at the close of the year. The operations were particularly successful in the Yellápúr-range, where 4,289 teak-plants, out of a total of 4,418, survived.

141. The following seedlings are also reported to have been obtained from seeds sown in the forests and to be doing well:—

Teak ...	...	...	...	...	2,377
Blackwood	...	...	...	...	336
Junglewood	...	...	...	...	5,210
					7,923

142. The amount expended was Rs. 678.

143. *Southern Division of Kánara.*—The disease which attacked the trees in the Kásarkód casuarina-plantation has again appeared, and many of the trees have died during the year.

144. In Honávar, 25 acres were planted up with teak-seedlings and 1,515 are reported to be flourishing.

145. Seeds of several kinds were collected and sown broadcast by the guards, as usual, but no good was effected.

146. Nothing was expended in this Division.

147. *Belgaum.*—A teak-nursery was made at Nágargáli, and the young plants were put out in an enclosed portion of the forest with a view to testing the behaviour of young plants under different degrees of shade. Several small nurseries were also made in the Khánápur-range, and the plantation at Deshnur was extended from 156 to 180 acres at a cost of Rs. 96; 918 plants of several kinds were put down. These plants together with those previously planted, are reported to be coming on very well.

148. The amount expended in the Division was Rs. 96.

149. *Dhárwár, Bijápur and Kolába.*—No fresh planting was done in these Divisions. The plants that came up from seeds sown broadcast in Bijápur, and referred to in the last Administration-Report, were killed by drought.

150. The expenditure incurred on plantations was Rs. 161 in Dhárwár, Rs. 17 in Bijápur; in Kolába there was no expenditure.

151. *Ratnágiri.*—17,991 seedlings of casuarina, *Terminalia tomentosa*, teak, &c, were planted in the Dápoli-plantation, and a nursery containing 15,615 seedlings was made. About 8 khandis of seed were also collected and sown broadcast by the guards.

152. The amount expended was Rs. 84.

153. *General Remarks.*—The poor results obtained up to the present time from artificial regeneration in the moist zone are, I feel sure, mainly due to the inexperience of the men employed in lifting and planting seedlings. Otherwise, we should not find naturally-sown seedlings flourishing in places in which planted seedlings have proved a complete failure. By sowing seed in bamboo tubes,

and planting out the tubes, it is hoped that greater success will be attained, as no damage can be done in this manner to the delicate fibrils of the roots, on the preservation of which the success of the operation mainly depends.

154. Mr. Haselden was the first to start planting by means of bamboo-tubes, and this may account for the superior results said to have been attained in his Division with teak-plants put down in the Yellápur-range in 1892, 4,289 out of a total of 4,418 having survived up to present time.

155. As regards reproduction, generally, experience seems to show that complete closure and the exclusion of fire are the most effective means of regenerating the forests of the Southern Circle. Artificial regeneration cannot be expected to effect much on extensive areas, although it may be usefully employed as a means of establishing a suitable proportion of superior species and of filling up blanks in the covert. The want of a sufficiently-numerous and skilled departmental staff is a great hindrance to successful regeneration.

(*3*). *Early Thinnings.*

156. In the Northern Division of Kánara, thinnings were made in the teak-plantations of the Kárwár-range, and 4,973 poles were extracted at a cost of Rs. 327. They fetched Rs. 1,371.

(*4*). *Experiments.*

157. In the Southern Division of Kánara, the Divisional Officer reports that seeds of the *Pithecolobium saman* were sown in bamboo-tubes at every náka of the Honávar-range, and that all the seeds have germinated. The trees of this species reared in Kánara, especially in Sirsi and Yellápur, are in a flourishing condition.

(*e*). Extraction and Transport of Major Forest-Produce by Land and Water.

158. The principal produce which is transported by water is that taken down to the Kodibág-depôt near Kárwár from the forests in the immediate neighbourhood of the Kálánadi and its tributary the Káneri. About 81,750 cubic-feet of large teak-timber are extracted in this manner every year. The timber is dragged down to the slopes overhanging the rivers by elephants, slipped into the water, and rafted down to Kodibág.

159. Rivers are also utilized for the transport of small timber and firewood in Kolába, Ratnágiri and Kánara.

160. Produce from other forests is conveyed to depôt in carts, drawn by buffaloes or bullocks.

161. The Southern Mahratta Railway is also utilized to a considerable extent for the local distribution and export of produce.

(*f*). Exploitation of Minor Forest-Produce.

(*1*). *Extraction of Fodder.*

162. The extraction of fodder is quite an insignificant feature in the working of the forests of the Southern Circle. Villagers are generally allowed to remove grass from the open portions of forests in their own villages free of charge. Small patches of valuable grass-lands in Belgaum, Bijápur, Kolába and Ratnágiri are sold by auction, the purchasers making their own arrangements for the cutting and removal of the grass. In the same way, grass is sometimes sold from plantations and closed numbers in Dhárwár. The total amount received annually on account of fodder sold in the above-mentioned manner is only about Rs. 8,174

(*2*). *Grazing.*

163. Grazing is allowed to cattle in the Government forests under the regulations referred to in paragraph 114 of this report.

164. After protection from fire, the regulation of the grazing generally, but more especially in the timber-forests of Kánara, is the most important factor in the maintenance of the forests. Those forests can be treated only by the method of jardinage, which makes satisfactory regulation of the grazing difficult. At present, cattle are allowed to graze almost everywhere in Kánara, but a salient feature of the organization now in progress will be their confinement to sufficient, but limited, areas, and the exclusion from the most important teak-forests of outsiders' cattle, which come from the more open country in the rainy season.

165. In Dhárwár and Bijápur, the gradual closure of about 25 per cent. of the area of the forests was in progress when it was stopped on receipt of